

CLAIMS:

1. A surface protecting adhesive film for a semiconductor wafer in which an adhesive layer is formed on one surface of a base film, wherein the adhesive layer comprises 100 weight parts of a polymer (A) having a functional group capable of reacting with a cross-linking agent and a temperature ( $T_a$ ) in a range of from  $-50^{\circ}\text{C}$  to  $5^{\circ}\text{C}$  at which  $\tan \delta$  of a dynamic viscoelasticity of the polymer(A) is maximized, from 10 weight parts to 100 weight parts of a polymer (B) having a functional group capable of reacting with a cross-linking agent and a temperature ( $T_b$ ) in a range of from more than  $5^{\circ}\text{C}$  to  $50^{\circ}\text{C}$  at which  $\tan \delta$  of a dynamic viscoelasticity of the polymer(B) is maximized, and from 0.1 weight part to 10 weight parts of a cross-linking agent (C) having two or more cross-linkable functional groups in a molecule based on 100 weight parts of total amount of the polymers (A) and (B), wherein the thickness of the adhesive layer is from  $5\text{ }\mu\text{m}$  to  $50\text{ }\mu\text{m}$ .
2. The surface protecting adhesive film for the semiconductor wafer according to claim 1, wherein a storage elastic modules ( $E'$ ) at  $25^{\circ}\text{C}$  of at least one layer of a base film is from  $1 \times 10^8$  to  $1 \times 10^{10}$  Pa and thickness of the base film is from  $10\text{ }\mu\text{m}$  to  $120\text{ }\mu\text{m}$ .
3. The surface protecting adhesive film for the semiconductor wafer according to claim 1 or claim 2, wherein polymers (A) and (B) are acrylic acid alkyl ester copolymers.
4. A protecting method for a semiconductor wafer comprising the steps of: applying a surface protecting adhesive film for the semiconductor wafer on a circuit-forming surface of the semiconductor wafer via an

adhesive layer thereof; grinding a non-circuit-formed surface of the semiconductor wafer; and peeling away the surface protecting adhesive film for the semiconductor wafer , wherein the surface protecting adhesive film for the semiconductor wafer according to claim 1 to 3 is used in the

5 protecting method for the semiconductor wafer.